

In the Claims:

Please cancel claims 1-58. Please add new claims 75-80 as follows:

1-58. (Canceled)

59. (Original) A method of making a microelectronic device, comprising:
forming active devices at least proximate to a first surface of a microelectronic substrate, the microelectronic substrate having a second surface facing opposite the first surface, the second surface having a projected area;
and
removing material from the second surface of the microelectronic substrate to form heat transfer surface features, wherein a surface area of the second surface including the heat transfer surface features is greater than the projected area.

60. (Original) The method of claim 59 wherein removing material from the second surface includes etching grooves in the second surface.

61. (Original) The method of claim 59, further comprising disposing a thermal conductor within at least some of the recesses formed by removing material from the second surface.

62. (Original) The method of claim 59, further comprising coupling an enclosure member to the second surface.

63. (Original) The method of claim 59, further comprising coupling to the second surface a sealed heat transport system having a sealed cavity and a thermal conductor disposed within the cavity.

64. (Original) A method of making a microelectronic device, comprising:
forming active devices at least proximate to a first surface of a microelectronic substrate;
forming at least one recess in a second surface of the microelectronic substrate facing opposite from the first surface;
disposing a thermal conductor in the at least one recess, wherein the thermal conductor is not configured to provide electrical communication between the microelectronic substrate and external components; and
sealably enclosing the at least one recess with the thermal conductor positioned and configured to transfer heat from the active devices to a region external to the microelectronic substrate.
65. (Original) The method of claim 64 wherein forming at least one recess includes etching at least one groove.
66. (Original) The method of claim 64 wherein forming at least one recess includes forming a plurality of grooves.
67. (Original) The method of claim 64 wherein disposing a thermal conductor includes placing a liquid in a position to absorb heat from the microelectronic substrate, vaporize, transfer heat to an enclosure member, and condense.
68. (Original) A method of making a microelectronic device, comprising:
forming active devices at least proximate to a first surface of a microelectronic substrate, the microelectronic substrate having a second surface facing opposite from the first surface, the second surface having a projected area;
forming heat transfer surface features integrally in the second surface of the microelectronic substrate, wherein a surface area of the second surface

including the heat transfer surface features is greater than the projected area; and

attaching to the microelectronic substrate a heat transport system with a thermal conductor configured to transfer heat from the active devices to a region external to the microelectronic device, the heat transport system being in thermal communication with the heat transfer surface features.

69. (Original) The method of claim 68, wherein the thermal conductor is the second of two thermal conductors, and wherein the method further comprises disposing a first thermal conductor between at least some of the heat transfer surface features on the microelectronic substrate.

70. (Original) The method of claim 68 wherein forming heat transfer surface features includes forming a plurality of projections.

71. (Original) The method of claim 68 wherein attaching to the microelectronic substrate a heat transport system includes adhering the heat transport system to the microelectronic substrate with a nitride adhesive.

72. (Original) A method of cooling a microelectronic device, comprising:
providing a microelectronic substrate having a first surface, a second surface with a plurality of surface features, and a plurality of active devices at least proximate to the first surface, wherein the plurality of surface features is not configured to provide electrical communication between the microelectronic substrate and components external to the microelectronic substrate; and
absorbing heat from the second surface through a heat transport system with a thermal conductor configured to transfer heat from the active devices to a region external to the microelectronic device.

73. (Original) The method of claim 72 wherein absorbing heat from the second surface includes:

- heating the thermal conductor proximate to a first portion of the heat transport system;
- vaporizing at least a portion of the thermal conductor; and
- condensing the vaporized thermal conductor at least proximate to a second portion of the heat transport system.

74. (Original) The method of claim 72 wherein the thermal conductor is the second of two thermal conductors and wherein the microelectronic substrate includes a first thermal conductor proximate to the surface features, and wherein absorbing heat from the second surface includes:

- heating the first thermal conductor;
- transferring heat between the first thermal conductor and the heat transport system;
- heating the second thermal conductor proximate to a first portion of the heat transport system;
- vaporizing at least a portion of the second thermal conductor; and
- condensing the vaporized second thermal conductor at least proximate to a second portion of the heat transport system.

75. (New) The method of claim 59 wherein removing material from the second surface comprises forming heat transfer surface features that extend a distance approximately equal to one-third to one-half of a distance between the first and second surfaces of the microelectronic substrate.

76. (New) The method of claim 64 wherein:

- forming at least one recess comprises forming a plurality of recesses; and
- sealably enclosing the recesses comprises sealably enclosing the recesses such that the recesses are in fluid communication with each other.

77. (New) The method of claim 64 wherein disposing the thermal conductor comprises disposing a fluid in the at least one recess.

78. (New) The method of claim 68 wherein attaching the heat transport system comprises attaching the heat transport system to the second surface of the microelectronic substrate.

79. (New) The method of claim 68 wherein the thermal conductor is a liquid, and wherein attaching the microelectronic substrate comprises positioning the liquid to absorb heat from the microelectronic substrate, vaporize, transfer heat to the region external to the microelectronic device, and condense.

80. (New) The method of claim 68 wherein the thermal conductor is not configured to provide electrical communication between the microelectronic substrate and external components.